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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------|------------------|
| 10/522,217   | 01/24/2005  | Yuji Maeda           | 01831P00180US        | 1585             |
| 32116  | 7590        | 08/31/2006           | EXAMINER             |                  |
| WOOD, PHILLIPS, KATZ, CLARK & MORTIMER<br>500 W. MADISON STREET<br>SUITE 3800<br>CHICAGO, IL 60661 |             |                      | TOLAN, EDWARD THOMAS |                  |
|  |             |                      | ART UNIT             | PAPER NUMBER     |
|  |             |                      | 3725                 |                  |

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                          |                  |
|------------------------------|--------------------------|------------------|
| <b>Office Action Summary</b> | Application No.          | Applicant(s)     |
|                              | 10/522,217               | MAEDA ET AL.     |
|                              | Examiner<br>Edward Tolan | Art Unit<br>3725 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,4,10,11,13 and 16 is/are rejected.
- 7) Claim(s) 3,5-9,12,14,15 and 17-19 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 January 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Priority***

Applicant should provide an amendment to the beginning of the specification stating the 35 USC 371 priority data of this application.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Daniels et al. (3,415,098). Daniels discloses the production of an oval tube (5) from a slug (15) of material by impact extrusion. Daniels discloses trimming (column 3, lines 10-12).

Claims 1,2,10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Martin (2,979,195). Martin discloses impact extruding a metal slug (18) to form an elliptical tube (column 4, lines 18-42) and trimming the tube (column 4, lines 50-55). Martin discloses a columnar impact extrusion punch (17), a press die (20) and a stripper (22). The punch includes a shaft (17), a punch head (17a) and a punch shoulder (17b). The die includes a die base (21) and a die ring (20). The punch shoulder has an outer surface having an oval (elliptical) cross section and the die ring has an oval cross section (column 5, lines 24-25).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (2,979,195) in view of Friden (2,162,776). Martin discloses a punch shoulder (17b) that is tapered to produce the sloped shoulder (12) on the tube. Martin does not disclose a taper angle. Friden teaches (page 1, column 2, lines 10-15 and page 2, column 2, lines 27-35) that it is known to taper a shoulder (23) of a punch (page 1, column 2, lines 10-15 and page 2, column 2, lines 27-35) to produce a shoulder of a tube (11) at a 10-15 degree angle. It would have been obvious to one skilled in the art at the time of invention to taper the punch shoulder of Martin at a known angle as taught by Friden in order to produce an angular tube end of ten or more degrees. The skilled artisan would have been motivated to provide angles about either minor or major axes of the tube in order to provide appropriate tapered shoulders.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (2,979,195) in view of Nakahara et al. (4,200,051). Martin does not disclose annealing. Nakahara teaches that it is known to impact extrude tubes and to use processing such as end forming by drawing and annealing to order to form a known tube end diameter and thickness, it would have been obvious to one skilled in the art at the time of

invention to provide annealing in addition to the tube end diameter forming operation of trimming in the invention of Martin, as taught by Nakahara in order to finish a tube end.

***Allowable Subject Matter***

Claims 3,5-9,12,14,15 and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3 and 12 are allowable because the prior art does not disclose, in an impact extrusion punch having generating lines of first and second taper surfaces on opposite sides of minor and major axes of the punch head have angles of 55-65 degrees, 43-53 degrees for the first taper surface respectively, wherein an outer surface of the punch shoulder and an inner peripheral surface of the die ring have minor axis to major axis dimensional ratios of 0.5-0.9.

Claims 5,6,14 and 15 are allowable because the prior art does not disclose a stripper with radially movable segments conforming to the shape of the base of the punch head.

Claims 7-9 and 17-19 are allowable because the prior art of record does not disclose that the trimming device includes a mandrel having a taper portion with a truncated conical shape and that a proximal portion of the taper portion has a diameter greater than a length of a major axis of an inner peripheral surface of the tube body.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Ed Tolan whose telephone number is 571-272-4525. FAX communications should be sent to 571-273-8300.

ED TOLAN  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "Ed Tolan".